

WHAT IS CLAIMED IS:

Sub A1
1. A hollow piston used in a compressor, wherein the piston has an end wall that receives the pressure of a cylinder bore of the compressor, the end wall having a substantially flat outer end face and an inner end face that is opposite to the outer end face, wherein the contour of the inner end face, from the radially outside portion toward the radially inside portion, first approaches the outer end face and then departs from the outer end face.

2. The piston according to claim 1, wherein the inner end face includes an annular concave surface, which is located about the axis of the piston, and a convex surface, wherein the convex surface is located radially inside and is joined to the annular concave surface.

3. The piston according to claim 2, wherein the annular concave surface is a smooth curved surface, and wherein the cross section of the concave surface is uniform over the entire circumference about the axis of the piston.

SUB B1
4. The piston according to claim 3, wherein the cross section of the annular concave surface is arcuate.

5. The piston according to claim 2, wherein the convex surface is a smooth curved surface, and wherein the cross section of the convex surface is uniform over the entire circumference about the axis of the piston.

SUB B2
6. The piston according to claim 5, wherein the cross section of the convex surface is arcuate.

SUB A2
7. The piston according to claim 1, wherein the convex

Sub B2
5 surface is annular about the axis of the piston, wherein the inner end face includes a flat surface that joins to and is located radially inside the annular convex surface.

Sub B2
5 8. The piston according to claim 1, wherein the end wall includes a plurality of ribs, wherein the ribs extend radially on the inner end face and are arranged at equal angular intervals.

10 9. The piston according to claim 1, further comprising a head piece and a body piece that is coupled to the head piece, wherein the head piece includes the end wall, and the body piece includes the remainder of the piston, and wherein, when the head piece and the body piece are separated, the inner end
15 face is exposed.

Sub B3
10 10. A hollow piston used in a compressor, wherein the piston is accommodated in a cylinder bore of the compressor, the piston comprising:

20 an end wall that receives the pressure of the cylinder bore, the end wall having a substantially flat outer end face and an inner end face that is opposite to the outer end face, wherein a recess is formed in the outer end face; and

a protrusion that is formed on the inner end face to
25 reinforce the end wall.

C' 11. The piston according to claim 10, wherein the protrusion is aligned axially with the recess.

Sub B3
30 12. The piston according to claim 10, wherein the contour of the protrusion, from the radially outside portion toward the radially inside portion, first approaches the outer end face and then departs from the outer end face.

Sub B3
13. The piston according to claim 12, wherein the surface of the protrusion includes an annular concave surface, which is located about the axis of the piston, and a convex surface, wherein the convex surface is located radially inside and is joined to the annular concave surface.

C'
14. The piston according to claim 13, wherein the convex surface is aligned axially with the recess.

10 15. The piston according to claim 10, wherein the protrusion is located on the axis of the piston.

16. The piston according to claim 10, wherein the protrusion includes a plurality of ribs.

Sub B4
15 17. The piston according to claim 16, wherein the ribs extend radially.

18. The piston according to claim 17, wherein the ribs are arranged at equal angular intervals.

Sub C'
20 19. The piston according to claim 10, further comprising a head piece and a body piece that is coupled to the head piece, wherein the head piece includes the end wall, and the body piece includes the remainder of the piston, and wherein, when the head piece and the body piece are separated, the inner end face is exposed.

25 20. A method for manufacturing a hollow piston used in a compressor, wherein the piston includes a head piece and a body piece that is coupled to the head piece, wherein the head piece includes an end wall that receives the pressure of a cylinder bore of the compressor and the body piece includes the remainder of the piston, and wherein the end wall includes

a substantially flat outer end face and an inner end face that is opposite to the outer end face, the method comprising:

preparing a mold for forming the head piece, wherein the mold is designed such that a temporary protrusion that is not present in the finished head piece is formed on the inner end face;

pouring molten metal into the mold;

pushing the temporary protrusion before the molten metal solidifies to prevent formation of shrinkage cavities; and

removing the protrusion after the molten metal solidifies.

21. The method according to claim 20, wherein preparing of a mold includes designing the mold such that a reinforcing protrusion is formed on the inner end face, wherein the temporary protrusion is formed on the reinforcing projection.